

FORM PTO-1449 U.S. Department of Commerce  
(Equivalent) Patent and Trademark Office

U.S. Application Serial No.  
08/995,108

Atty. Docket No.  
AM1776

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(Use several sheets if necessary)



Peijun Ding et al.  
Applicants

December 19, 1997  
Filing Date

Unknown  
Group

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U. S. PATENT DOCUMENTS

Examiner Initial	Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
<i>JM</i>	<del>5,281,485</del>	01/25/94	Colgan et al.	428	457	
<i>JM</i>	<del>5,676,587</del>	10/14/97	Landers et al.	451	57	

FOREIGN PATENT DOCUMENTS

Examiner Initial	Document Number	Publication Date	Name	Class	Subclass	Translation If Appropriate
<i>JM</i>	<del>EP 0 751 566 A2</del>	01/02/97	Cabral, Jr. et al.	H01L	23/532	
<i>JM</i>	<del>EP 0 570 205 A1</del>	11/18/93	Yamamoto et al.	H01L	21/321	

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

*JM* Karen Holloway et al., "Tantalum as a Diffusion Barrier Between Copper and Silicon: Failure Mechanism and Effect of Nitrogen Additions", J. Appl. Phys. 71 (11), 1 June 1992, pp. 5433 - 5444.

*JM* Katsutaka Sasaki et al., "Stoichiometry of Ta-N Film and Its Application for Diffusion Barrier in the Al<sub>3</sub>Ta/Ta-N/Si Contact System", Japanese Journal of Applied Physics, Vol. 29, No. 6, June 1990, pp. 1043 - 1047.

*JM* E. M. Zielinski et al., "The Effects of Processing on the Microstructure of Copper Thin Films on Tantalum Barrier Layers", Mat. Res. Soc. Symp. Proc. Vol. 391, (1995), pp 303 - 308.

*JM* PCT International Search Report dated 25/03/1999

Examiner: Juliana A. Maresca Date Considered 8/30/99

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*attach #2*

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U. S. PATENT DOCUMENTS

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<i>[Signature]</i>	4,319,264	03/09/82	Gangulee et al.	357	71	
<i>[Signature]</i>	5,186,718	02/16/93	Tepman et al.	29	25.01	
<i>[Signature]</i>	5,236,868	08/17/93	Nulman	437	190	
<i>[Signature]</i>	5,320,728	06/14/94	Tepman	204	192	
<i>[Signature]</i>	5,571,752	11/05/96	Chen et al.	437	189	

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Date Considered

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

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Gang Bai et al., "Copper Interconnection Deposition Techniques and Integration", 1996 Symposium on VLSI Technology, Digests of Technical Papers (0-7803-3342-X/96, IEEE).

S. M. Rossnagel and J. Hopwood, "Metal ion deposition from ionized magnetron sputtering discharge", *J. Vac. Sci. Technol. B*, Vol. 12, No. 1, pp. 449 - 453 (Jan/Feb 1994).

S. M. Rossnagel et al., "Thin, high atomic weight refractory film deposition for diffusion barrier, adhesion layer, and seed layer applications", *J. Vac. Sci. Technol. B*, Vol. 14, No. 3, pp. 1819 - 1827 (May/Jun 1996).

C. Steinbruchel, "Patterning of Copper for Multilevel Metallization: Reactive Ion Etching and Chemical-Mechanical Polishing", *Applied Surface Science*, 91, pp. 139-146 (1995).

U.S. Patent Application Serial No. 08/824,911, of Ngan et al., filed March 27, 1997.

U.S. Patent Application Serial No. 08/863,451, of Chiang et al., filed May 27, 1997.

U.S. Patent Application Serial No. 08/924,487, of Ngan et al., filed August 23, 1997.



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